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EXAMINER	
CURS, NATHAN M	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/870,665	Applicant(s) GRAVES ET AL.	
	Examiner Nathan Curs	Art Unit 2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 June 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 June 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: in multiple locations throughout the specification, elements described as either access or edge elements are not described consistently; for example, element 12 of the drawings is sometimes referred to as "edge node 12" and other times as "access node 12".

Appropriate correction is required.

Claim Objections

2. Claim 31 is objected to because of the following informalities: the term "multiplers" is not clear. The claim was examined assuming "multiplers" was intended to be "multiplexers". Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Chang et al. (US Patent No. 6657757).

Regarding claim 1, Chang et al. disclose a method of optical wavelength allocation in an photonic network comprising the steps of: generating a first plurality of optical wavelengths at a first location in the network (fig. 5, elements 502 and col. 12, lines 10-40); selecting a predetermined one wavelength of the first plurality of optical wavelengths and transmitting the predetermined one wavelength to a second location (fig. 2, fig. 5, elements 502, 501 and W1 and col. 9, line 49 to col. 10, line 12); and generating a second plurality of optical wavelengths at a second location in the network with reference to the predetermined one wavelength (fig. 5, element 501, col. 12, lines 10-40, and col. 15, line 66 to col. 16, line 6), where the second location refers to the received predetermined one wavelength in relation to selecting which wavelengths are then used to transmit from the second location.

Regarding claim 2, Chang et al. disclose a method as claimed in claim 1 further comprising the steps of forming a second group of wavelengths by grouping selected second wavelengths; and transmitting the second group of wavelengths to a third location in the network (fig. 5, elements 501 and 505 and col. 14, lines 40-45), where the multi-wavelength communication between each node of the Chang et al. network is communication in a group of wavelengths.

Regarding claim 3, Chang et al. disclose a method as claimed in claim 2 further comprising the steps of modulating one wavelength of the second group of wavelengths at the third location and passing the modulated one of the second group of wavelengths to the first location in the network (fig. 5, elements 505 and 502; fig. 2 and col. 9, lines 49-55; fig. 7 and col. 18, line 1-21).

Regarding claim 4, Chang et al. disclose a method as claimed in claim 2 further comprising the steps of modulating one wavelength of the second group of wavelengths at the third location and passing the modulated one of the second group of wavelengths to a fourth

location in the network (fig. 5, elements 505 and 507, 503, 506; fig. 2 and col. 9, lines 49-55; fig. 7 and col. 18, line 1-21).

Regarding claim 5, Chang et al. disclose a method as claimed in claim 2 further comprising the step of modulating a wavelength of the first group of wavelengths at the first location (fig. 5, element 502 and fig. 7 and col. 18, line 1-21).

Regarding claim 6, Chang et al. disclose an apparatus for optical wavelength allocation in an photonic network comprising: means for generating a first plurality of optical wavelengths at a first location in the network (fig. 5, elements 502 and col. 12, lines 10-40); means for selecting a predetermined one wavelength of the first plurality of optical wavelengths and means for transmitting the predetermined one wavelength to a second location (fig. 2, fig. 5, elements 502, 501 and W1 and col. 9, line 49 to col. 10, line 12) for generating a second plurality of optical wavelengths at a second location in the network with reference to the predetermined one wavelength (fig. 5, element 501, col. 12, lines 10-40, and col. 15, line 66 to col. 16, line 6), where the second location refers to the received predetermined one wavelength in relation to selecting which wavelengths are then used to transmit from the second location.

Regarding claim 7, Chang et al. disclose apparatus as claimed in claim 6 further comprising means for forming a second group of wavelengths by grouping selected second wavelengths; and transmitting the second group of wavelengths to a third location in the network (fig. 5, elements 501 and 505 and col. 14, lines 40-45), where the multi-wavelength communication between each node of the Chang et al. network is communication in a group of wavelengths.

Regarding claim 8, Chang et al. disclose apparatus as claimed in claim 7 further comprising means for modulating one wavelength of the second group of wavelengths at the third location and means for passing the modulated one of the second group of wavelengths to

the first location in the network (fig. 5, elements 505 and 502; fig. 2 and col. 9, lines 49-55; fig. 7 and col. 18, line 1-21).

Regarding claim 9, Chang et al. disclose apparatus as claimed in claim 7 further comprising means for modulating one wavelength of the second group of wavelengths at the third location and passing the modulated one of the second group of wavelengths to a fourth location in the network (fig. 5, elements 505 and 507, 503, 506; fig. 2 and col. 9, lines 49-55; fig. 7 and col. 18, line 1-21).

Regarding claim 10, Chang et al. disclose a method of optical wavelength allocation in a photonic network comprising the steps of: generating a first plurality of optical wavelengths at a first location in the network (fig. 5, elements 502 and col. 12, lines 10-40); and generating a second plurality of optical wavelengths at a second location in the network (fig. 5, element 501, col. 12, lines 10-40, and col. 15, line 66 to col. 16, line 6).

Regarding claim 11, Chang et al. disclose a method as claimed in claim 10 further comprising the steps of forming a second group of wavelengths by grouping selected second wavelengths; and transmitting the second group of wavelengths to a third location in the network (fig. 5, elements 501 and 505 and col. 14, lines 40-45), where the multi-wavelength communication between each node of the Chang et al. network is communication in a group of wavelengths.

Regarding claim 12, Chang et al. disclose a method as claimed in claim 11 further comprising the steps of modulating one wavelength of the second group of wavelengths at the third location and passing the modulated one of the group of wavelengths to the first location in the network (fig. 5, elements 505 and 502; fig. 2 and col. 9, lines 49-55; fig. 7 and col. 18, line 1-21).

Regarding claim 13, Chang et al. disclose a method as claimed in claim 2 further comprising the steps of modulating one wavelength of the second group of wavelengths at the third location and passing the modulated one of the second group of wavelengths to a fourth location in the network (fig. 5, elements 505 and 507, 503, 506; fig. 2 and col. 9, lines 49-55; fig. 7 and col. 18, line 1-21).

Regarding claim 14, Chang et al. disclose a method as claimed in claim 2 further comprising the step of modulating a wavelength of the first group of wavelengths at the first location (fig. 5, element 502 and fig. 7 and col. 18, line 1-21).

Regarding claim 15, Chang et al. disclose apparatus for optical wavelength allocation in an photonic network comprising: means for generating a first plurality of optical wavelengths at a first location in the network (fig. 5, elements 502 and col. 12, lines 10-40); and means for generating a second plurality of optical wavelengths at a second location in the network (fig. 5, element 501, col. 12, lines 10-40, and col. 15, line 66 to col. 16, line 6).

Regarding claim 16, Chang et al. disclose apparatus as claimed in claim 15 further comprising means for forming a second group of wavelengths by grouping selected second wavelengths; and for transmitting the second group of wavelengths to a third location in the network (fig. 5, elements 501 and 505 and col. 14, lines 40-45), where the multi-wavelength communication between each node of the Chang et al. network is communication in a group of wavelengths.

Regarding claim 17, Chang et al. disclose apparatus as claimed in claim 16 further comprising means for modulating one wavelength of the second group of wavelengths at the third location and means for passing the modulated one wavelength of the second group of wavelengths to the first location in the network (fig. 5, elements 505 and 502; fig. 2 and col. 9, lines 49-55; fig. 7 and col. 18, line 1-21).

Regarding claim 18, Chang et al. disclose apparatus as claimed in claim 16 further comprising means for modulating one wavelength of the second group of wavelengths at the third location and passing the modulated one wavelength of the second the group of wavelengths to a fourth location in the network (fig. 5, elements 505 and 507, 503, 506; fig. 2 and col. 9, lines 49-55; fig. 7 and col. 18, line 1-21).

Regarding claim 19, Chang et al. disclose apparatus as claimed in claim 16 further comprising means for modulating a wavelength of the first group of wavelengths at the first location (fig. 5, element 502 and fig. 7 and col. 18, line 1-21).

Regarding claim 20, Chang et al. disclose a method of optical wavelength allocation in an photonic network comprising the steps of: generating a plurality of optical wavelengths at a first location in the network (fig. 5, elements 502 and col. 12, lines 10-40); forming a group of wavelengths by grouping selected wavelengths; and transmitting the group of wavelengths to a second location in the network (fig. 5, elements 502 and 501 and col. 14, lines 40-45), where the multi-wavelength communication between each node of the Chang et al. network is communication in a group of wavelengths.

Regarding claim 21, Chang et al. disclose a method as claimed in claim 20 further comprising the steps of modulating one of the group of wavelengths at the second location and passing the group of wavelengths to a third location in the network (fig. 5, elements 501 and 505; fig. 2 and col. 9, lines 49-55; fig. 7 and col. 18, line 1-21).

Regarding claim 22, Chang et al. disclose a method as claimed in claim 21 further comprising the step of modulating a second of the group of wavelengths at the third location (fig. 5, elements 505; fig. 2 and col. 9, lines 49-55; fig. 7 and col. 18, line 1-21).

Regarding claim 23, Chang et al. disclose a method as claimed in claim 22 further comprising the step of passing the modulated second of the group of wavelengths back to the

second location thereby establishing a two way communications path using two optical wavelengths between the second and third locations (fig. 5, elements 505 and 501, col. 9, line 49 to col. 10, line 12).

Regarding claim 24, Chang et al. disclose apparatus for optical wavelength allocation in an photonic network comprising: means for generating a plurality of optical wavelengths at a first location in the network (fig. 5, elements 502 and col. 12, lines 10-40); means for forming a group of wavelengths by grouping selected wavelengths; and means for transmitting the group of wavelengths to a second location in the network (fig. 5, elements 502 and 501 and col. 14, lines 40-45), where the multi-wavelength communication between each node of the Chang et al. network is communication in a group of wavelengths.

Regarding claim 25, Chang et al. disclose apparatus as claimed in claim 24 further comprising means for modulating one of the group of wavelengths at the second location and for passing the group of wavelengths to a third location in the network (fig. 5, elements 501 and 505; fig. 2 and col. 9, lines 49-55; fig. 7 and col. 18, line 1-21).

Regarding claim 26, Chang et al. disclose apparatus as claimed in claim 25 further comprising means for modulating a second of the group of wavelengths at the third location (fig. 5, elements 505; fig. 2 and col. 9, lines 49-55; fig. 7 and col. 18, line 1-21).

Regarding claim 27, Chang et al. disclose apparatus as claimed in claim 26 further comprising means for passing the modulated second of the group of wavelengths back to the second location whereby a two way communications path using two optical wavelengths between the second and third locations is established (fig. 5, elements 505 and 501, col. 9, line 49 to col. 10, line 12).

Regarding claim 28, Chang et al. disclose apparatus as claimed in claim 24 wherein the means for generating a plurality of optical wavelengths includes a multiple lambda source (fig. 5, element 502 and col. 12, lines 10-40).

Regarding claim 29, Chang et al. disclose apparatus as claimed in claimed 28 wherein the optical wavelengths conform to a dense wavelength distributed multiplexing scheme (col. 6, lines 25-34).

5. Claims 10, 11, 15, 16, 19-21, 24, 25, 28 and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Koehler (US Patent No. 6426815).

Regarding claim 10, Koehler discloses a method of optical wavelength allocation in a photonic network comprising the steps of: generating a first plurality of optical wavelengths at a first location in the network (fig. 1, element 114 and col. 2, lines 50-65); and generating a second plurality of optical wavelengths at a second location in the network (fig. 1, element 112 and col. 2, lines 50-65).

Regarding claim 11, Koehler discloses a method as claimed in claim 10 further comprising the steps of forming a second group of wavelengths by grouping selected second wavelengths (figs. 1 and 2, element 116 and col. 3, lines 38-48); and transmitting the second group of wavelengths to a third location in the network (fig. 1, element 122, col. 3, line 66 to col. 3, line 3 and col. 4, lines 9-21).

Regarding claim 15, Koehler discloses apparatus for optical wavelength allocation in a photonic network comprising: means for generating a first plurality of optical wavelengths at a first location in the network (fig. 1, element 114 and col. 2, lines 50-65); and means for generating a second plurality of optical wavelengths at a second location in the network (fig. 1, element 112 and col. 2, lines 50-65).

Regarding claim 16, Koehler discloses apparatus as claimed in claim 15 further comprising means for forming a second group of wavelengths by grouping selected second wavelengths (figs. 1 and 2, element 116 and col. 3, lines 38-48); and for transmitting the second group of wavelengths to a third location in the network (fig. 1, element 122, col. 3, line 66 to col. 3, line 3 and col. 4, lines 9-21).

Regarding claim 19, Koehler discloses apparatus as claimed in claim 16 further comprising means for modulating a wavelength of the first group of wavelengths at the first location (fig. 1, element 114 and col. 2, lines 50-60).

Regarding claim 20, Koehler discloses a method of optical wavelength allocation in an photonic network comprising the steps of: generating a plurality of optical wavelengths at a first location in the network (fig. 1, element 114 and col. 2, lines 50-65); forming a group of wavelengths by grouping selected wavelengths and transmitting the group of wavelengths to a second location in the network (fig. 2, element 214 and 234 (mismarked in figure as 214) and col. 3, lines 16-29).

Regarding claim 21, Koehler discloses a method as claimed in claim 20 further comprising the steps of modulating one of the group of wavelengths at the second location (fig. 1, element 112 and col. 2, lines 50-60) and passing the group of wavelengths to a third location in the network (fig. 1, element 122 and col. 2, line 50 to col. 3, line 3).

Regarding claim 24, Koehler discloses apparatus for optical wavelength allocation in an photonic network comprising: means for generating a plurality of optical wavelengths at a first location in the network (fig. 1, element 114 and col. 2, lines 50-65); means for forming a group of wavelengths by grouping selected wavelengths and means for transmitting the group of wavelengths to a second location in the network (fig. 2, elements 214 and 234 and col. 3, lines 16-29).

Regarding claim 25, Koehler discloses apparatus as claimed in claim 24 further comprising means for modulating one of the group of wavelengths at the second location (fig. 1, element 112 and col. 2, lines 50-60) and for passing the group of wavelengths to a third location in the network (fig. 1, element 122 and col. 2, line 50 to col. 3, line 3).

Regarding claim 28, Koehler discloses apparatus as claimed in claim 24 wherein the means for generating a plurality of optical wavelengths includes a multiple lambda source (fig. 1, element 114).

Regarding claim 30, Koehler discloses apparatus as claimed in claim 24 wherein the means for generating a plurality of optical wavelengths includes wavelength distributed multiplexers (fig. 2, element 234 (mismarked in figure as 214) and col. 3, lines 16-29).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1, 2, 5-7, 14 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koehler (US Patent No. 6426815).

Regarding claim 1, Koehler discloses a method of optical wavelength allocation in an photonic network comprising the steps of: generating a first plurality of optical wavelengths at a first location in the network (fig. 1, element 114 and col. 2, lines 50-65); selecting a first plurality of predetermined optical wavelengths and transmitting the wavelengths to a second location (fig. 2, elements 214 and 234 (mismarked in figure as 214) and col. 3, lines 16-29); and generating a second plurality of optical wavelengths at a second location in the network with

reference to the first plurality of wavelengths (figs. 1 and 2, element 116 and col. 3, lines 30-59). Koehler does not disclose selecting a predetermined one wavelength of the first plurality of predetermined wavelengths; however it would have been obvious to one of ordinary skill in the art at the time of the invention that one wavelength of the first plurality of predetermined wavelengths could be transmitted to the second location, versus transmitting all the wavelengths (prima facie obviousness, see MPEP 2144.05), where the second location could generate the second plurality of wavelengths with reference to the one wavelength; in other words, generate wavelengths absent from the transmission from the first location, as disclosed by Koehler (col. 3, line 59 to col. 4, line 8).

Regarding claim 2, Koehler discloses a method as claimed in claim 1 further comprising the steps of forming a second group of wavelengths by grouping selected second wavelengths (figs. 1 and 2, element 116 and col. 3, lines 38-48) and transmitting the second group of wavelengths to a third location in the network (fig. 1, element 122, col. 3, line 66 to col. 3, line 3 and col. 4, lines 9-21).

Regarding claim 5, Koehler discloses a method as claimed in claim 2 further comprising the step of modulating a wavelength of the first group of wavelengths at the first location (fig. 1, element 114 and col. 2, lines 50-60).

Regarding claim 6, Koehler discloses apparatus for optical wavelength allocation in an photonic network comprising the steps of: means for generating a first plurality of optical wavelengths at a first location in the network (fig. 1, element 114 and col. 2, lines 50-65); means for selecting a first plurality of predetermined optical wavelengths and transmitting the wavelengths to a second location (fig. 2, elements 214 and 234 (mismarked in figure as 214) and col. 3, lines 16-29); and means for generating a second plurality of optical wavelengths at a second location in the network with reference to the first plurality of wavelengths (figs. 1 and 2,

element 116 and col. 3, lines 30-59). Koehler does not disclose selecting a predetermined one wavelength of the first plurality of predetermined wavelengths; however it would have been obvious to one of ordinary skill in the art at the time of the invention that one wavelength of the first plurality of predetermined wavelengths could be transmitted to the second location, versus transmitting all the wavelengths (prima facie obviousness, see MPEP 2144.05), where the second location could generate the second plurality of wavelengths with reference to the one wavelength; in other words, generate wavelengths absent from the transmission from the first location, as disclosed by Koehler (col. 3, line 59 to col. 4, line 8).

Regarding claim 7, Koehler discloses apparatus as claimed in claim 6 further comprising means for forming a second group of wavelengths by grouping selected second wavelengths (figs. 1 and 2, element 116 and col. 3, lines 38-48); and transmitting the second group of wavelengths to a third location in the network (fig. 1, element 122, col. 3, line 66 to col. 3, line 3 and col. 4, lines 9-21).

Regarding claim 14, Koehler discloses a method as claimed in claim 2 further comprising the step of modulating a wavelength of the first group of wavelengths at the first location (fig. 1, element 114 and col. 2, lines 50-60).

Regarding claim 29, Koehler discloses apparatus as claimed in claimed 28 wherein the optical wavelengths conform to a wavelength distributed multiplexing scheme (col. 1, lines 51-53), but does not disclose that the optical wavelengths conform to a dense wavelength distributed multiplexing scheme. However, Koehler discloses using WDM for increasing the capacity of fiber networks (col. 1, lines 10-12). It would have been obvious to one of ordinary skill in the art at the time of the invention to use dense WDM in the system Koehler in order to further increase the capacity of the network.

8. Claims 3, 4, 8, 9, 12, 13, 17, 18, 22, 23, 26, and 27 rejected under 35 U.S.C. 103(a) as being unpatentable over Koehler (US Patent No. 6426815) in view of Sharma et al. (US Patent No. 5717795).

Regarding claim 3, Koehler discloses a method as claimed in claim 2 further comprising the steps of receiving one wavelength of the second group of wavelengths at the third location (fig. 1, element 122 and col. 2, line 66 to col. 3, line 3) and generating and passing one of a group of wavelengths at the third location to the first location in the network (col. 3, lines 3-15). Koehler does not disclose modulating one wavelength of the second group of wavelengths at the third location and then passing it to the first location. Sharma et al. discloses using a multiwavelength source to generate a wavelength at a hub node in a ring network and multiplexing it and sending it to another location, where it is modulated at that location and then returned to the hub node (fig. 15 and col. 8, line 59 to col. 9, line 32). It would have been obvious to one of ordinary skill in the art at the time of the invention to add and multiplex a multiwavelength source as taught by Sharma et al. to the system of Koehler to originate a wavelength at the second location of Koehler, sending it to and modulating it at the third location, and then passing the modulated wavelength back to the first location, in order to eliminate the need for light source equipment at the third location, as taught by Sharma et al. (col. 2, lines 50-54).

Regarding claims 4 and 13, Koehler discloses a method as claimed in claim 2 but does not disclose passing the modulated one wavelength of the second the group of wavelengths to a fourth location in the network. Koehler discloses generating and passing one of a group of wavelengths at the third location to the first location (col. 3, lines 3-15), and discloses a fourth location in between the third and first in the ring (fig. 1, element 124), but does not disclose passing one wavelength from the third location to a fourth location. However, Koehler discloses

that the fourth location could add/drop any of the system wavelengths (col. 4, lines 9-21). It would have been obvious to one of ordinary skill in the art at the time of the invention that a wavelength from the third location could be passed to the fourth location, in order to add/drop the wavelength at the fourth location to provide communication between the third and fourth locations. Koehler also does not disclose modulating one wavelength of the second group of wavelengths at the third location before passing it to the fourth location. However, Sharma et al. discloses using a multiwavelength source to generate a wavelength at a hub node in a ring network and multiplexing it and sending it to another location, where it is modulated at that location and returned to the main trunk line (fig. 15 and col. 8, line 59 to col. 9, line 32). It would have been obvious to one of ordinary skill in the art at the time of the invention to add and multiplex a multiwavelength source as taught by Sharma et al. to the system of Koehler to originate a wavelength at the second location of Koehler, sending it to and modulating it at the third location, and then passing the modulated wavelength to a fourth location, in order to eliminate the need for light source equipment at the third location, as taught by Sharma et al. (col. 2, lines 50-54).

Regarding claim 8, Koehler discloses apparatus as claimed in claim 7 further comprising means for receiving one wavelength of the second group of wavelengths at the third location (fig. 1, element 122 and col. 2, line 66 to col. 3, line 3) and generating and passing one of a group of wavelengths at the third location to the first location in the network (col. 3, lines 3-15). Koehler does not disclose modulating one wavelength of the second group of wavelengths at the third location and then passing it to the first location. Sharma et al. discloses using a multiwavelength source to generate a wavelength at a hub node in a ring network and multiplexing it and sending it to another location, where it is modulated at that location and then returned to the hub node (fig. 15 and col. 8, line 59 to col. 9, line 32). It would have been

obvious to one of ordinary skill in the art at the time of the invention to add and multiplex a multiwavelength source as taught by Sharma et al. to the system of Koehler to originate a wavelength at the second location of Koehler, sending it to and modulating it at the third location, and then passing the modulated wavelength back to the first location, in order to eliminate the need for light source equipment at the third location, as taught by Sharma et al. (col. 2, lines 50-54).

Regarding claim 9, Koehler discloses apparatus as claimed in claim 7 but does not disclose means for passing the modulated one wavelength of the second the group of wavelengths to a fourth location in the network. Koehler discloses generating and passing one of a group of wavelengths at the third location to the first location (col. 3, lines 3-15), and discloses a fourth location in between the third and first in the ring (fig. 1, element 124), but does not disclose passing one wavelength from the third location to a fourth location. However, Koehler discloses that the fourth location could add/drop any of the system wavelengths (col. 4, lines 9-21). It would have been obvious to one of ordinary skill in the art at the time of the invention that a wavelength from the third location could be passed to the fourth location, in order to add/drop the wavelength at the fourth location to provide communication between the third and fourth locations. Koehler also does not disclose modulating one wavelength of the second group of wavelengths at the third location before passing it to the fourth location. However, Sharma et al. discloses using a multiwavelength source to generate a wavelength at a hub node in a ring network and multiplexing it and sending it to another location, where it is modulated at that location and returned to the main trunk line (fig. 15 and col. 8, line 59 to col. 9, line 32). It would have been obvious to one of ordinary skill in the art at the time of the invention to add and multiplex a multiwavelength source as taught by Sharma et al. to the system of Koehler to originate a wavelength at the second location of Koehler, sending it to and

modulating it at the third location, and then passing the modulated wavelength to a fourth location, in order to eliminate the need for light source equipment at the third location, as taught by Sharma et al. (col. 2, lines 50-54).

Regarding claim 12, Koehler discloses a method as claimed in claim 11 further comprising the steps of receiving one wavelength of the second group of wavelengths at the third location (fig. 1, element 122 and col. 2, line 66 to col. 3, line 3) and generating and passing one of a group of wavelengths at the third location to the first location in the network (col. 3, lines 3-15). Koehler does not disclose modulating one wavelength of the second group of wavelengths at the third location and then passing it to the first location. Sharma et al. discloses using a multiwavelength source to generate a wavelength at a hub node in a ring network and multiplexing it and sending it to another location, where it is modulated at that location and then returned to the hub node (fig. 15 and col. 8, line 59 to col. 9, line 32). It would have been obvious to one of ordinary skill in the art at the time of the invention to add and multiplex a multiwavelength source as taught by Sharma et al. to the system of Koehler to originate a wavelength at the second location of Koehler, sending it to and modulating it at the third location, and then passing the modulated wavelength back to the first location, in order to eliminate the need for light source equipment at the third location, as taught by Sharma et al. (col. 2, lines 50-54).

Regarding claim 17, Koehler discloses apparatus as claimed in claim 16 further comprising means for receiving one wavelength of the second group of wavelengths at the third location (fig. 1, element 122 and col. 2, line 66 to col. 3, line 3) and generating and passing one of a group of wavelengths at the third location to the first location in the network (col. 3, lines 3-15). Koehler does not disclose means for modulating one wavelength of the second group of wavelengths at the third location and then passing it to the first location. Sharma et al. discloses

using a multiwavelength source to generate a wavelength at a hub node in a ring network and multiplexing it and sending it to another location, where it is modulated at that location and then returned to the hub node (fig. 15 and col. 8, line 59 to col. 9, line 32). It would have been obvious to one of ordinary skill in the art at the time of the invention to add and multiplex a multiwavelength source as taught by Sharma et al. to the system of Koehler to originate a wavelength at the second location of Koehler, sending it to and modulating it at the third location, and then passing the modulated wavelength back to the first location, in order to eliminate the need for light source equipment at the third location, as taught by Sharma et al. (col. 2, lines 50-54).

Regarding claim 18, Koehler discloses apparatus as claimed in claim 16, but does not disclose passing the modulated one wavelength of the second the group of wavelengths to a fourth location in the network. Koehler discloses generating and passing one of a group of wavelengths at the third location to the first location (col. 3, lines 3-15), and discloses a fourth location in between the third and first in the ring (fig. 1, element 124), but does not disclose passing one wavelength from the third location to a fourth location. However, Koehler discloses that the fourth location could add/drop any of the system wavelengths (col. 4, lines 9-21). It would have been obvious to one of ordinary skill in the art at the time of the invention that a wavelength from the third location could be passed to the fourth location, in order to add/drop the wavelength at the fourth location to provide communication between the third and fourth locations. Koehler also does not disclose modulating one wavelength of the second group of wavelengths at the third location before passing it to the fourth location. However, Sharma et al. discloses using a multiwavelength source to generate a wavelength at a hub node in a ring network and multiplexing it and sending it to another location, where it is modulated at that location and returned to the main trunk line (fig. 15 and col. 8, line 59 to col. 9, line 32). It would

have been obvious to one of ordinary skill in the art at the time of the invention to add and multiplex a multiwavelength source as taught by Sharma et al. to the system of Koehler to originate a wavelength at the second location of Koehler, sending it to and modulating it at the third location, and then passing the modulated wavelength to a fourth location, in order to eliminate the need for light source equipment at the third location, as taught by Sharma et al. (col. 2, lines 50-54).

Regarding claim 22, Koehler discloses a method as claimed in claim 21, but does not disclose the step of modulating a second of the group of wavelengths at the third location. Sharma et al. discloses using a multiwavelength source to generate a wavelength at a hub node in a ring network and multiplexing it and sending it to another location, where it is modulated at that location and then returned to the hub node (fig. 15 and col. 8, line 59 to col. 9, line 32). It would have been obvious to one of ordinary skill in the art at the time of the invention to add and multiplex a multiwavelength source as taught by Sharma et al. to the system of Koehler to originate a wavelength at the second location of Koehler, sending it to and modulating it at the third location, and then passing the modulated wavelength back to the first location, in order to eliminate the need for light source equipment at the third location, as taught by Sharma et al. (col. 2, lines 50-54).

Regarding claim 23, Koehler discloses a method as claimed in claim 22 further comprising the step of passing a wavelength from the third location back to the second location thereby establishing a two way communications path using two optical wavelengths between the second and third locations (fig. 6 and col. 6, lines 28-56), but does not disclose that the wavelength passed back to the second location is a modulated second of the group of wavelengths. Sharma et al. discloses using a multiwavelength source to generate a wavelength at a hub node in a ring network and multiplexing it and sending it to another location, where it is

modulated at that location and then returned to a hub node (fig. 15 and col. 8, line 59 to col. 9, line 32). It would have been obvious to one of ordinary skill in the art at the time of the invention to add and multiplex a multiwavelength source as taught by Sharma et al. to the system of Koehler to originate a wavelength at the second location of Koehler, sending it to and modulating it at the third location, and then passing the modulated wavelength back to the second location, in order to eliminate the need for light source equipment at the third location, as taught by Sharma et al. (col. 2, lines 50-54).

Regarding claim 26, Koehler discloses apparatus as claimed in claim 25, but does not disclose means for modulating a second of the group of wavelengths at the third location. Sharma et al. discloses means for using a multiwavelength source to generate a wavelength at a hub node in a ring network and multiplexing it and sending it to another location, where it is modulated at that location and then returned to the hub node (fig. 15 and col. 8, line 59 to col. 9, line 32). It would have been obvious to one of ordinary skill in the art at the time of the invention to add and multiplex a multiwavelength source as taught by Sharma et al. to the system of Koehler to originate a wavelength at the second location of Koehler, sending it to and modulating it at the third location, and then passing the modulated wavelength back to the first location, in order to eliminate the need for light source equipment at the third location, as taught by Sharma et al. (col. 2, lines 50-54).

Regarding claim 27, Koehler discloses apparatus as claimed in claim 26 further comprising means for passing a wavelength from the third location back to the second location whereby a two way communications path using two optical wavelengths between the second and third locations is established (fig. 6 and col. 6, lines 28-56), but does not disclose that the wavelength passed back to the second location is a modulated second of the group of wavelengths. Sharma et al. discloses using a multiwavelength source to generate a wavelength

at a hub node in a ring network and multiplexing it and sending it to another location, where it is modulated at that location and then returned to a hub node (fig. 15 and col. 8, line 59 to col. 9, line 32). It would have been obvious to one of ordinary skill in the art at the time of the invention to add and multiplex a multiwavelength source as taught by Sharma et al. to the system of Koehler to originate a wavelength at the second location of Koehler, sending it to and modulating it at the third location, and then passing the modulated wavelength back to the second location, in order to eliminate the need for light source equipment at the third location, as taught by Sharma et al. (col. 2, lines 50-54).

9. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. (US Patent No. 6657757).

Regarding claim 30, Chang et al. disclose apparatus as claimed in claim 24, but does not explicitly disclose that the means for generating a plurality of optical wavelengths includes wavelength distributed multiplexers. However, Chang et al. disclose that the network is a WDM network (fig. 5, element 502 col. 12, lines 10-40). It would have been obvious to one of ordinary skill in the art at the time of the invention to use wavelength distributed multiplexers, in order to multiplex optical signals in a WDM network.

10. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. (US Patent No. 6657757) in view of Kartalopoulos ("Introduction to DWDM Technology", IEEE Press, 2000; page 175).

Regarding claim 31, Chang et al. disclose apparatus as claimed in claim 30, but do not disclose that the wavelength distributed multiplexers are coarse relative to a dense wavelength distributed multiplexing scheme. Kartalopoulos discloses that the term DWDM refers to a high

density of wavelengths in the same fiber and that the terms CWDM refers to a low density of wavelengths in the same fiber. Chang et al. disclose a low density of wavelength in the same fiber (fig. 5, elements W1-W3 and fig. 10, elements 1001-1004). It would have been obvious to one of ordinary skill in the art at the time of the invention to consider the wavelength distributed multiplexers of Chang et al. as coarse relative to a dense wavelength distributed multiplexing scheme, since Chang et al. discloses a low density of wavelengths.

11. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koehler (US Patent No. 6426815) in view of Kartalopoulos ("Introduction to DWDM Technology", IEEE Press, 2000; page 175).

Regarding claim 31, Koehler discloses the apparatus as claimed in claim 30, but does not discloses that the wavelength distributed multiplexers are coarse relative to a dense wavelength distributed multiplexing scheme. Kartalopoulos discloses that the term DWDM refers to a high density of wavelengths in the same fiber and that the terms CWDM refers to a low density of wavelengths in the same fiber. It would have been obvious to one of ordinary skill in the art at the time of the invention to consider the wavelength distributed multiplexers of Koehler as coarse relative to a dense wavelength distributed multiplexing scheme, since Koehler discloses a low density of wavelengths (four in each direction of transmission).

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- US Patent No. 5058101 (Albanese et al.) – Note a fiber point to multipoint ring network, where the broadcasting terminal transmits the output of a laser which is

modulated with an information signal onto one end of the ring and where a laser is not required at each station on the ring because the station modulates a wavelength received from the broadcasting terminal.

13. Any inquiry concerning this communication from the examiner should be directed to N. Curs whose telephone number is (703) 305-0370. The examiner can normally be reached M-F (from 9 AM to 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached at (703) 305-4729. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

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